



# Boll'd

**For Commercial Use Or Agricultural Use Only  
Not For Residential Use**

|   |        |
|---|--------|
| ACTIVE INGREDIENT                               |        |
| Ethephon (2-chloroethyl) phosphonic acid* ..... | 55.4%  |
| INERT INGREDIENTS.....                          | 44.6%  |
| TOTAL.....                                      | 100.0% |

\*This product contains 6 pounds ethephon per gallon.

### KEEP OUT OF REACH OF CHILDREN

**DANGER**

**PELIGRO**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand this label, find someone to explain it to you in detail.)

|  |
|--|
| <b>FIRST AID</b>   |
| <p><b>IF IN EYES:</b></p> <ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul> <p><b>IF ON SKIN OR CLOTHING:</b></p> <ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul> <p><b>IF SWALLOWED:</b></p> <ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul> <p><b>IF INHALED:</b></p> <ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul> |
| <b>EMERGENCY TELEPHONE NUMBERS</b>   |
| <p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact:</p> <ul style="list-style-type: none"> <li>• (800) 424-9300 CHEMTREC (transportation and spills)</li> <li>• (877) 424-7452 Poison Control Center (human health)</li> <li>• (800) 345-4735 ASPCA (animal health)</li> </ul>   |

**NOTE TO PHYSICIAN:** Probable mucosal damage may contraindicate the use of gastric lavage.

### PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS DANGER

Corrosive. Causes irreversible eye damage and skin burns. Harmful if swallowed or absorbed through skin. Do not get in eyes, on skin or on clothing. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

See inside booklet for additional PRECAUTIONARY STATEMENTS.

EPA Reg. No. 51036-218-9779

EPA Est. No 51036-GA-1

Distributed By  
Agriliance, LLC  
P.O. Box 64089, St. Paul, MN 55164-0089

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**PERSONAL PROTECTIVE EQUIPMENT:**

Applicators and other handlers must wear coveralls over long-sleeved shirt and long pants, chemical-resistant gloves, chemical-resistant footwear plus socks, protective eyewear, chemical-resistant headgear for overhead exposure, and chemical-resistant apron when mixing or loading or cleaning equipment.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

**USER SAFETY RECOMMENDATIONS**

Users should wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove clothing immediately if pesticide gets inside. Then wash body thoroughly and put on clean clothing. Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

**ENVIRONMENTAL HAZARDS**

Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Do not contaminate water used for irrigation or domestic purposes.

**USE PRECAUTIONS**

Do not apply Boll'd through any type of irrigation system.

Do not plant another crop within 30 days after treatment.

Mix only the amount of spray you expect to use each day. Do not allow mixed solution to stand overnight.

Avoid spray drift to nearby crops, as this product will cause modifications in plant growth. Plant injury or reduced yields will result.

AVOIDING SPRAY DRIFT AT THE APPLICATION SITE IS THE RESPONSIBILITY OF THE APPLICATOR.

The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator is responsible for considering all these factors when making decisions.

The following drift management requirements must be followed to avoid off-target movement from aerial applications to agricultural field crops. These requirements do not apply to forestry applications, public health uses or to applications using dry formulations.

1. The distance of the outer most nozzles on the boom must not exceed 3/4 the length of the wingspan or rotor.
2. Nozzles must always point backward parallel with the air stream and never be pointed downwards more than 45 degrees.

Where states have more stringent regulations, they should be observed.

**AERIAL DRIFT REDUCTION ADVISORY****Information on Droplet Size**

The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

**Controlling Droplet Size**

- Volume - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- Pressure - Do not exceed the nozzle manufacturer's recommended pressures. For many nozzle types lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- Number of nozzles - Use the minimum number of nozzles that provide uniform coverage.
- Nozzle Orientation - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- Nozzle Type - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produces larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produces the largest droplets and the lowest drift.

**Boom Length**

For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

**AERIAL DRIFT REDUCTION ADVISORY (CONT'D)****Application Height**

Applications should not be made at a height greater than 10 feet above the top of the target plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment**

When applications are made with a crosswind, the swath will be displaced windward. Therefore, on the up and down edges of the field, the applicator should compensate for the displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with the increasing drift potential (higher wind, smaller drops, etc.).

**Wind**

Drift potential is lowest between wind speeds of 2-10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**Temperature and Humidity**

When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**Temperature Inversions**

Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**Sensitive Areas**

The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

**DIRECTIONS FOR USE**

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

**AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. This standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment, notification to workers, and restricted-entry intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 48 hours.

The REI increases to 72 hours in outdoor areas where average rainfall is less than 25 inches a year.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: coveralls over short-sleeved shirt and short pants, waterproof gloves, chemical-resistant footwear plus socks, protective eyewear, and chemical-resistant headgear for overhead exposure.

Notify workers of the application by warning them orally and by posting warning signs at entrances to treated areas.

**STORAGE AND DISPOSAL**

Do not contaminate water, food or feed by storage or disposal.

**Storage:** If container is broken or contents have spilled, follow all precautions indicated above and clean up immediately. Before cleaning up, put on full length trousers, long-sleeved shirt, protective gloves, and goggles or face shield. Soak up spill with absorbent media such as sand, earth or other suitable material and dispose of waste at an approved waste disposal facility.

**Pesticide Disposal:** Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste Representative at the nearest EPA Regional Office for guidance.

**Container Disposal:** Triple rinse (or equivalent) the empty containers. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If container is burned, stay out of smoke.

#### GENERAL INFORMATION

**Cotton:** A foliar spray of Boll'd will accelerate opening of mature unopened cotton bolls and enhance defoliation which can result in earlier harvest with an increased recoverable yield. Boll'd treatment allows increased efficiency from a once-over harvest.

**Tobacco (Flue-Cured):** A foliar spray of Boll'd promotes early, uniform "yellowing" of mature tobacco. Boll'd reduces curing time, allowing more efficient use of curing barn space, and increased control over harvest schedules.

**Spray Preparation:** Add ½ to ¾ of the required amount of water to the spray tank. Start agitation. Add the required amount of Boll'd and the remaining amount of water. Prepare only as much spray solution as can be used on the day of mixing. Do not allow spray solution to stand overnight. Do not spill the concentrated product on spray equipment, or any airplane parts.

ANY SPILLS SHOULD BE RINSED IMMEDIATELY WITH PLENTY OF WATER.

Use of a nurse tank is highly recommended for avoiding possible spills of concentrated formulation on spray equipment or any airplane parts.

**Tank Mixtures with Defoliant and Insecticides:** Follow all applicable use precautions and rate per acre recommendations on labels of products applied as tank mixtures or in sequence with Boll'd. In some cases, slight reduction in boll opening response has been observed when tank mixes with defoliant were used.

Good agitation in the spray tank is essential and a tank mixture should not be allowed to stand without agitation for more than 5 to 10 minutes. Read and observe all appropriate label use directions and precautions for the defoliant and insecticides used.

DO NOT MIX WITH DESICCANTS IF COTTON IS TO BE SPINDLE HARVESTED.

DO NOT TANK MIX BOLL'D WITH DEFOLIANTS CONTAINING SODIUM CHLORATE BECAUSE THIS RESULTS IN THE FORMATION OF HYPOCHLOROUS ACIDS WHICH, UPON HEATING, EMIT TOXIC CHLORINE FUMES.

**Equipment Cleaning:** Because of the acidic nature of this product, prolonged exposure to spray deposits will damage acrylic plastics, certain paints, and metals.

Rinse thoroughly with a detergent and water all exposed acrylic plastic-type materials (e.g., aircraft windshields), and painted surfaces within an hour after exposure to spray deposits.

At the end of each day, rinse thoroughly with a detergent and water all the metal parts of the aircraft and the associated spray equipment exposed to the spray deposits.

#### COTTON

| USE     | EXPECTED CONDITIONS        | BOLL'D RATE |        | ONE GALLON BOLL'D TREATS | SPRAY VOLUME |        | APPLICATION TIMING   |
|---------|----------------------------|-------------|--------|--------------------------|--------------|--------|--|
|         |                            | PTS/A       | LBS AI | ACRES                    | GROUND       | AIR**  |  |
| Boll'd* | Hot and dry 80°F or higher | 1-1/3       | 1.0    | 6                        | 15 to 50     | 2 to 5 | Apply when the number of mature unopened bolls is sufficient to produce the desired crop. See below for test of boll maturity. Treatment uniformly opens bolls 7 to 14 days earlier. |
|         | Dry and 75° to 80°F        | 2           | 1.5    | 4                        |              |        |  |
|         | Cool but above 65°F        | 2-2/3       | 2.0    | 3                        |              |        |  |
|         | or<br>Rank Cotton          |             |        |                          |              |        |  |

| USE  | EXPECTED CONDITIONS   | BOLL'D RATE |        | ONE GALLON BOLL'D TREATS | SPRAY VOLUME |         | APPLICATION TIMING   |
|--|---|-------------|--------|--------------------------|--------------|---------|--|
|  |   | PTS/A       | LBS AI | ACRES                    | GROUND       | AIR**   |  |
| Boll'd + Folex <sup>®</sup> Defoliant Tank Mix | High soil moisture<br>or<br>High fertility level<br>or<br>Rank Cotton | 1/3         | 0.25   | 24                       | 15 to 50     | 5 to 10 | Apply 4 to 7 days prior to Boll'd boll opening application. To be used as a sequential treatment with, not in place of, Boll'd boll opening treatment. |
| Boll'd + Dropp <sup>®</sup> Defoliant Tank Mix | High soil moisture<br>or<br>High fertility level<br>or<br>Rank Cotton | 1/3         | 0.25   | 24                       | 10 to 50     | 3 to 10 | Apply 4 to 7 days prior to Boll'd boll opening application. To be used as a sequential treatment with, not in place of, Boll'd boll opening treatment. |
| Preconditioner for Defoliation                 | Hot, dry, above 80°F  | 2/3         | 0.5    | 12                       | 15 to 50     | 2 to 5  | Apply 4 to 7 days prior to defoliant. Enhances top crop defoliation reducing deterioration of bottom crop and allows for earlier harvest.              |
|  | Cool, above 65°F<br>or<br>Rank Cotton                                 | 1-1/3       | 1.0    | 6                        |              |         |  |

**\*Pretreatment with Defoliants Prior to Boll'd Treatment:** If the cotton is overly rank or laying down in the middles and good spray coverage of the bolls with Boll'd is difficult, a pretreatment with defoliants will be useful to improve boll coverage with Boll'd. Use dosage rates of Boll'd recommended for boll opening. Read and observe all appropriate label use directions and precautions for the defoliant used.

**\*\*Note:** For California and Arizona, use a volume of no less than 5 gallons per acre for aerial applications.

**Boll Maturity:** A boll is mature when it is too hard to be dented when squeezed between thumb and fingers, too hard to be sliced with a sharp knife, and when the seed coat becomes light brown in color.

**Use Limitations:**

- Do not exceed a maximum of 2.0 lbs. ai/A for combined uses of Boll'd (or other ethephon containing products) per acre per year.
- Boll Opening: Do not tank mix Boll'd with a desiccant if the cotton is to be spindle harvested.
- Precondition for Defoliation: Do not tank mix Boll'd with desiccants unless plant desiccation is required. Do not use a defoliant before there is sufficient mature unopened bolls to produce the desired yield (see General Information section on how to test for boll maturity).

**When to Harvest:** Do not harvest cotton sooner than 7 days after a treatment with Boll'd. Observe the treated crop and harvest when optimum boll opening has been reached. Too early harvest might reduce the full advantage of the treatment and too late a harvest may result in reduced quality and loss of lint which will drop from the plant.

**TOBACCO**  
**(Flue-Cured Only)**

| Crop Situation             | Boll'd Pints/Acre | Spray Volume Gallons/Acre | Specific Directions   |
|----------------------------|-------------------|---------------------------|---|
| Directed Spray Application | 1-1/3             | 50-60                     | Use drop nozzles. Choose TG or OC spray tips designed to apply 50-60 gpa at 35-40 psi and at tractor speed of 2-3 mph. Use 2 nozzles per row; one on each side of the row dropped low enough to direct the spray to the leaves to be ripened and harvested. Thorough spray coverage is essential. With a directed spray, be sure to harvest all leaves with 20% or more yellowing.  |
| Over-the-Top Application   | 1-1/3 to 2-2/3    | 40-60                     | <p>Treat only when leaves remaining on the stalk are mature. To ensure remaining leaves are mature, test spray several tobacco plants as described under the section "Application Timing." Use the lower rate in a normally mature crop when experience indicates that minimum ripening inducement is required. Use the higher rate when the crop is heavy and has a tendency to be more rank or when temperatures are lower than normal. Always test spray to determine if the tobacco is mature enough to respond to treatment with Boll'd.</p> <p>Apply over-the-top Boll'd spray as a fine mist using three nozzles (one nozzle tip over the center of the plant, and one on each side) so all leaves are covered thoroughly, similar to the application pattern of systemic sucker control agents. Use a spray pressure of 40 to 60 psi.</p> |

**Use Limitations:**

- Do not apply Boll'd to immature leaves as this can result in unsatisfactory coloring, weight loss and reduced leaf quality.
- Do not allow the crop to over ripen in the field after using Boll'd, since this may cause some reduction in yield and quality.
- Do not treat before anticipated major storm which could prevent harvest and result in crop loss.
- Do not apply Boll'd if rain is expected within 4 hours.

**Application Timing:** Successful results with Boll'd call for treatment when leaves are mature, not overly rank green when sprayed. To easily determine the proper treatment timing and the number of leaves per stalk ready for harvest, test spray several plants in more than one location in each field and observe the response. Mature leaves will begin to yellow in 24 to 72 hours. Test leaves that fail to yellow in 72 hours are not mature and are not ready for Boll'd treatment. Wait a few days to permit further natural maturing, then make another test spray or "maturity" check.

When you have confirmed the number of leaves per plant that will color, you can determine the number of acres to treat in order to fill the barn.

Prepare your test spray by mixing one teaspoon of Boll'd in 1 quart of water. Spray each test plant with about 1 oz. of this mixture, covering all leaves with a fine mist. Boll'd will not color immature sprayed leaves.

**When To Harvest:** All mature, sprayed leaves will begin to color within 24 to 72 hours after Boll'd application. The yellowing process is weather dependent; cool weather will delay, while hot, sunny weather can speed up the process. Harvest treated tobacco when leaves have reached the desired color intensity.

Do not allow tobacco to become over ripe before starting harvest. Leaf drop can occur when tobacco is over ripe and left on the stalk. If a number of the bottom leaves have yellowed at the time of treatment, they should be harvested prior to spraying with Boll'd.

With an over-the-top application, harvesting can commence 48 hours after Boll'd application depending on weather conditions or to avoid over ripe tobacco. Tobacco harvested 48 hours after treatment will require more time in the coloring phase of the curing process.

**Curing Boll'd Treated Tobacco:** Curing procedures are as much an art as a science and each cure must be judged on the basis of tobacco condition, interval between treatment and harvest, weather, and type of curing facility before prescription temperature and ventilation schedules can be established. To obtain maximum quality, care must be taken to observe and control the curing process closely, especially during the late "coloring" and early "drying" stages of the leaf.

Boll'd treated tobacco will have started the coloring process when harvested, reducing the time required in the coloring phase of curing. Treated tobacco should be dried faster. If tobacco leaves are green or contain some green when harvested, it may be necessary to color them for a few hours. If the leaves are completely yellow, temperature and ventilation must be adjusted in a manner to dry the tobacco as fast as possible without scalding. Once the leaf is dried (3/4 dry), you should follow normal procedures for curing. Since Boll'd treated leaves cure faster, treated and untreated leaves should not be cured together in the same barn.

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